

REMARKS

Claim 8 has been amended for eventual rejoinder.

The Rejections Under 35 U.S.C. §112

Contrary to the Examiner's assertion in the Office Action of 1 September 2004, the HF ranges recited in claims 18 and 19 are inherent in the original disclosure and need not be explicitly recited to be supported by the original disclosure. It is well settled that the subject matter of a claim need not be described in the specification literally in order for the specification to satisfy the description requirement of 35 U.S.C. §112, first paragraph. See In re Lukach, 169 USPQ 795 (CCPA 1971); Kennecott Corp. v. Kyocera International, Inc., 5 USPQ2d 1194, 1197 (Fed. Cir. 1987); and Martin v. Johnson, 172 USPQ 391 (CCPA 1972). An inherent disclosure is sufficient. While explicit written description for the exact claim language may not be found, such explicit written description is *not* required in a situation such as that in the present application where it is clear that Applicants' contemplated the claimed HF ranges as a portion of their invention. See, for example, *In re Wertheim*, 191 U.S.P.Q. 90 (CCPA 1976) or *In re Voass*, 957 F.2d 812, 194 USPQ 267 (CCPA 1976), where the court found a range of 20-100% itself necessarily described the range of 50-100%. . The specification here similarly necessarily discloses HF ranges *within* the described broad range of 5% to 20%, such as 10-20% or 15-20%. This is further supported by the specific embodiment of 15% (see Table 2). Accordingly, under the law, claims 18 and 19 do not introduce new matter and thus the rejection should be withdrawn.

The Rejections Under 35 U.S.C. §102 and §103

Mercaldi suggests an etching composition which includes any known polyhydric alcohol in combination with two inorganic acids (e.g., HNO₃ and hydrofluoric acid). However, the "consisting essentially of" language in claim 17 excludes two acids. The addition of HNO₃, as required in Mercaldi, would reduce the selectivity and uniformity of etching, per this invention, of doped silicon oxide layers, such as doped silicate glasses such as BSG, PSG, BPSG, over thermal oxide. (Page 1, line 19-page 2, line 6; page 2, lines 14-26; page 3, lines 33-37). As for nonobviousness, Mercaldi teaches away from Applicants' invention since Mercaldi requires two acids and the claims permit only one.

Deckert et al. teaches an etching solution (employing only single solvents) for the etching of silicon nitride layers and silicon oxide. At col. 2 lines 21-24 Deckert states:

...an etchant solution comprising concentrated aqueous hydrogen fluoride in a high boiling organic solvent that is miscible with water and compatible with hydrogen fluoride can be employed at elevated temperatures to etch both silicon nitride and silicon oxide and to etch the silicon nitride at a rate at least equal to that of the silicon oxide... (emphasis added)

As can be seen in the specification at page 2, lines 1-5, however, Applicants' etching solution is for etching layers of BSG, BPSG, PSG and not thermal oxide. Thus, Deckert cannot possibly motivate any changes directed to such an etching application. Even if it did, the expectation would be that silicon oxide would be etched as well. Instead, the solution of this invention greatly preferentially etches doped silicate glass layers over thermal oxide. See the foregoing and table 2. Thus, nothing in Deckert would suggest an etching solution having a solvent mixture as required in the claims. Nor is there a hint in Mercaldi for one skilled in the art to take the extra step of mixing solvents and arrive at the claimed subject matter because Mercaldi would necessarily lead to use of two acids.

For the record, the Examiner's calculations regarding the HF content of Deckert teach an HF content of less than 5%. Applicants' claims require an HF content of at least 5% by weight.

Sakaguchi et al (US 5,767,020) does not cure the deficiencies of Deckert. The compositions of Sakaguchi preferably comprise from 1-95% hydrofluoric acid and from 1-95% hydrogen peroxide. There is no discussion of solvent mixtures. The range for the HF component taught in Sakaguchi is so broad as to add nothing to the teachings of Deckert. Taken together the references would in no way lead one skilled in the art to arrive at the compositions of the present invention.

It is submitted that the claims of the application are in condition for allowance. However, should the Examiner have any questions or comments, he is cordially invited to telephone the undersigned at the number below.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

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Filed: 2 May 2005

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